Sustainable & Non Toxic Solutions to Pest Control & Turf Maintenance

An Introduction to Integrated Pest Management and Natural Lawn Care in Illinois Schools

Presented by:

SAFER PEST CONTROL PROJECT
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I. Synthetics and Sustainability

Agenda

I. Synthetics and Sustainability
II. IPM and Illinois Law
III. IPM in Schools
IV. NLC on School Grounds

"Conventional" Systems

"SPRAY AND PRAY"

- History and Overview
- Product approach
- Reactive
- The science and what we're learning? shortcomings

"WEED AND FEED"

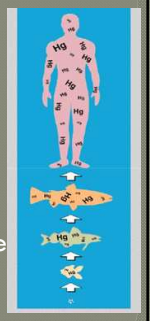
- History and Overview
- Product approach
- Reactive
- The science and what we're learning

What's in these chemicals?

What are they doing to us, our pets, our environment?

Environment Impacts

- Contamination & Persistence in:
  - Water
  - Air
  - soil
- Wildlife/biodiversity losses
- Ecosystem imbalance
- Biomagnification



Problems with Pesticides: Children's Health

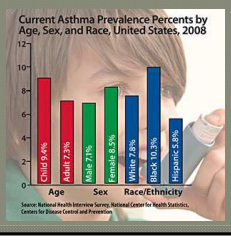
- Smaller
- Different physiology
- Still developing
- Behavior

- Same exposure = Bigger Dose

Greater Potential for Health Effects

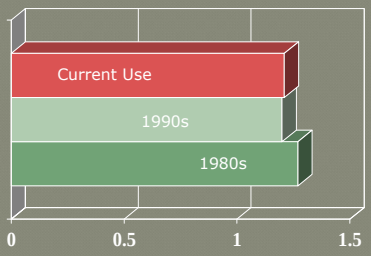
Problems with Pesticides

Acute Exposure:
- Asthma Attacks
- Flu-like Symptoms
- Eye and Skin Irritation



Long-Term Exposure:
- Asthma
- Cancer
- Neurological damage
- Immune System
- Hormone Disruption

Is this sustainable…?



"Green Carpet Syndrome": A Sea of 'Not-So' Green

UCIrvine TODAY

Urban 'green' spaces may contribute to global warming, UCI study finds

Turfgrass management creates more greenhouse gas than plants remove from atmosphere

— Irvine, Calif., January 19, 2010 —

Dispelling the notion that urban "green" spaces help counteract greenhouse gas emissions, new research has found – in Southern California at least – that total emissions would be lower if lawns did not exist.

Turfgrass lawns help remove carbon dioxide from the atmosphere through photosynthesis and store it as organic carbon in soil, making them important "carbon sinks." However, greenhouse gas emissions from fertilizer production, mowing, leaf blowing and other lawn management practices are four times greater than the amount of carbon stored by ornamental grass in parks, a UC Irvine study shows. These emissions include nitrous oxide released from soil after fertilization. Nitrous oxide is a greenhouse gas that's 300 times more powerful than carbon dioxide, the Earth's most problematic climate warmer.

"Lawns look great – they're nice and green and healthy, and they're photosynthesizing a lot of organic carbon. But the carbon-storing benefits of lawns are counteracted by fuel consumption," said Amy

Amy Townsend-Small, Earth system science postdoctoral researcher, found that management of urban "green"

Gainesville.com

Nutrient levels high in bodies of water at UF

By Thomas Stewart
Correspondent

Published Saturday, January 30, 2010 at 10:11 p.m.

For many, Lake Alice is one of the more scenic spots on the University of Florida campus, with students studying, picnicking and eyeing alligators in its waters or on its shores. Some people have even been known to sprinkle their loved ones' ashes in the lake.

But the lake is one of many water bodies on campus that would be considered impaired under new limits on nutrients proposed earlier this month by the U.S. Environmental Protection Agency. Nutrients such as nitrogen and phosphorous can cause algal blooms that can be deadly for fish and hazardous to humans.

In fact, not a single water body on campus that has been monitored regularly over the past few years would meet the proposed limits, according to a review of campus water quality records. Some nutrient levels are more than 20 times the proposed limits.

The most likely culprit, said Mark Clark, the UF professor in charge of monitoring, is fertilizer used by the University Athletic Association.

The UAA uses fertilizer on a number of fields on campus, including Florida Field, the football practice fields and the baseball diamond, to keep them green and safe for play.

The problem is that runoff from the fields is spreading the fertilizer across campus, causing conditions that are ripe for algal blooms. One such bloom began in Lake Alice b

Sustainable Solutions:

Integrated Pest Management & Natural Lawn Care

Additional Lawn Care Impacts

- **Water**
  - The typical suburban lawn consumes 10,000 gallons of water above and beyond rainfall every year. [4]
  - 7 billion gallons nationwide
- **Fossil fuel**
  - A 1/3 acre lawn consumes 18 gallons of fossil fuel per year.[1]
  - A single lawnmower pollutes as much in one hour as a car driven from 20 to 100 miles. [2]
- **Fertilizer**
  - 70 million tons per year. [3]
  - 40-60% of Nitrogen on lawns ends up in surface or ground water. [3]

1. Perry, L. 2006. *Fuel-Efficient Lawns and Landscapes.* Available online at
2. Bormann, F.H. et al. 1993. *Redesigning the American Lawn.* New Haven, CT: Yale University Press.
3. Wilson, Alex and Jessica Boehland. 2005. *Natural Landscaping and Artificial Turf: Achieving Water use and Pesticide Reduction.* FM Link.
4. Vickers, Amy. 2001. *Handbook of Water Use and Conservation.* Amherst, MA: WaterFlow Press.

II. IPM and NLC in Illinois Law

IPM in Schools Law: Public Act 91-0525

1) Must adopt an IPM program
2) Appoint IPM Coordinator
3) Parent and Employee Notification (2 days)
4) ***Required training for staff***

Goal is to reduce or eliminate spraying, if you must:

- Notify employees and parents (2 days)
- Never apply when children are present
- Remove or cover toys and other items handled by children
- Children should not return to the treated area for 2 hours

Lawncare Products Application and Notice Act: 096-0424

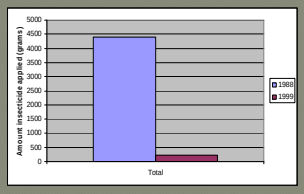
- Illinois' Lawncare Products Application and Notice Act, general public
- School & Childcare Pesticide Notification Law (updated 2009)
  - Increases notification from two to four days before application
  - Recommends using NLC
  - Requires a lawn care coordinator be appointed
  - Requires MSDS sheets to be available on site
  - Neighbor notification (if requested)

Rationale

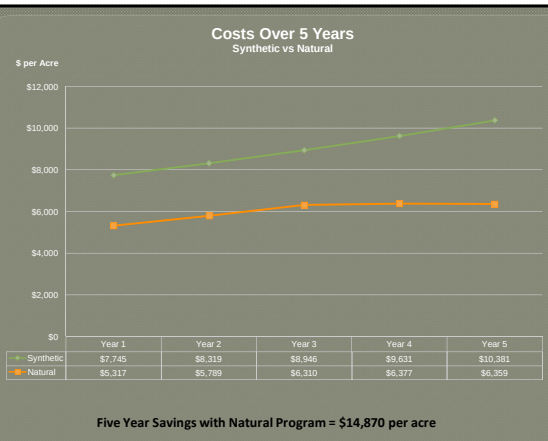
Cheaper

7 mo. study 12 building 66 apt's	Bait Treatments Only	IPM Management
Initial Treatment	$15.60	$39.50
29 Weeks of Service	$5.70	$2.80

Pesticide Reduction



- Fewer occupant complaints
- Faster and greater control of pests
- Additional benefits of IPM



Five Year Savings with Natural Program = $14,870 per acre

III. IPM in Your Facility

Least Toxic Products

Sprays, Bombs & Fumigants

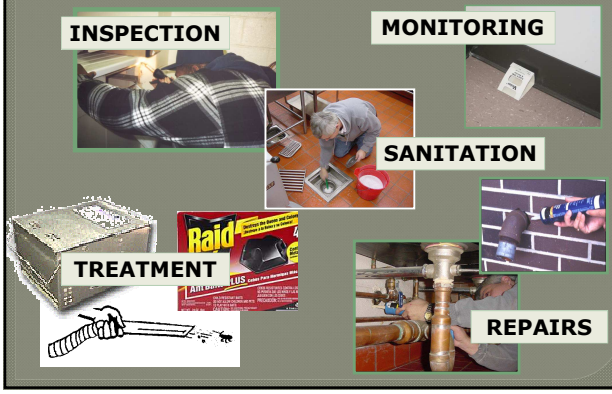
Safer

Containerized Bait, Gel Bait

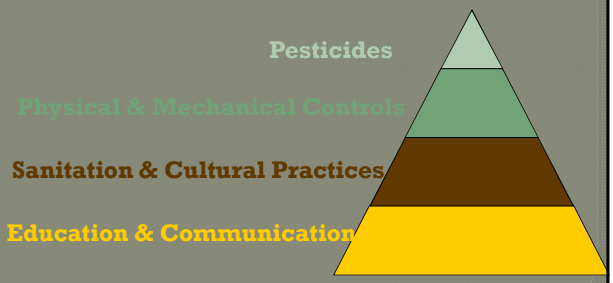
What is Integrated Pest Management?

1. Keep Pests Out
2. Remove Pest's Food and Water
3. Remove Pest's Shelter
4. Monitor for Pests
5. Create IPM Plan and Keep Records
6. Correct Existing Pest Problems

IPM at Work



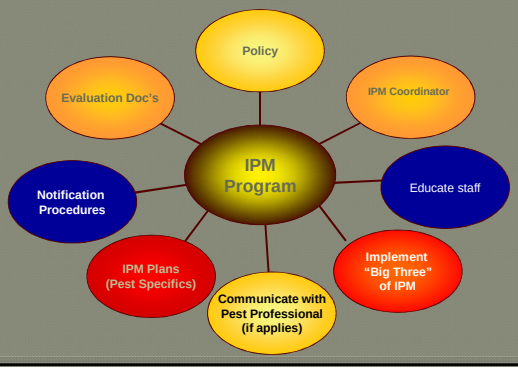
IPM is a PROCESS



Resources for Developing IPM Programs

- Safer Pest Control Project www.spcpweb.org
  - Binder (CPS and General)
- IDPH
  - Plan examples and other templates
- EPA
  - IPM in Schools: A How-To Manual

Setting up Program: 8 Simple Steps



IV. Natural Lawn Care on School Grounds

Improving Your Turf

Vicious cycle:

- Chemical stress
- Sick lawns (weeds, disease, pests)
- Add more chemicals to "solve" problem

Bottom Line:

Lawns addicted to constant stream of inputs to maintain appearance

…and then the grass.

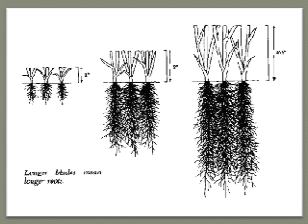
Natural Lawn Care: First the soil…

- *Healthy soil = healthy turf*
- *"Feed the soil"*
- *Soil quality:*
  - *Chemistry*
  - *Physical properties*
  - *Biological life*
- *Test your soil*

Appropriate Maintenance is key for Natural Lawn Care

I. Mow High

- ✓Mow 3" or higher
- ✓Remove only 1/3 of blade
- ✓Sharpen mower blades



III. Water & Fertilize Wisely

Use organic fertilizer:

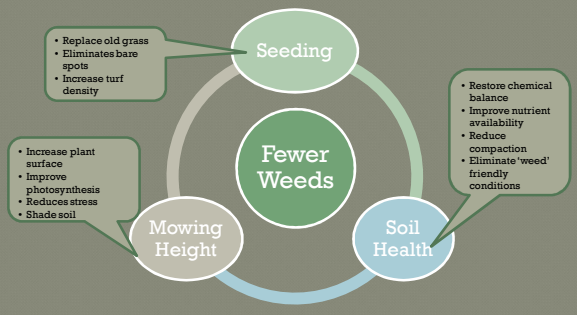
- Appropriate timing and quantities
- Clean ingredients
  - Selection, quality

Water:

- Dormancy is ok & expected
- Deeply & infrequently
- Early a.m.
  - Dry and absorbent; prevent disease

II. Keep Clippings = Mulch

Healthy Lawn = Weed Control



Every weed tells a story.

Resources

- Safer Pest Control Project
  - Website: download factsheets, guidelines, templates
  - Come to a workshop!
- SafeLawns.org
- Illinois Departments of Public Health & Agriculture, Extension Services; EPA
- Beyondpesticides.org; Safelawns.org; panna.org; lawn to lakes